

## EXPLANATION OF PLATE 407

- FIGS. 1, 2. *OEDOGONIUM HIANUS* Nordstedt & Hirn var. *MEGASPORUM* Jao, var. nov. FIG. 1, part of the female filament, with three mature oogonia and one young oogonium and three dwarf males on the swollen suffultory cell; FIG. 2, part of the androsporangial plant, with three androsporangia.
- FIGS. 3, 4. *OEDOGONIUM SUBORBICULARE* Jao, sp. nov. FIG. 3, tip of the female filament, with three mature oogonia; FIG. 4, part of the male filament, showing three antheridia, two of which each contain two sperms formed by a transverse division.
- FIGS. 5-7. *BULBOCHAETE PRAERETICULATA* Jao, sp. nov. FIG. 5, part of the female filament, with mature (upper) and young (lower) oogonia, and the dwarf males on both the suffultory cell and oogonia; FIG. 6, part of the androsporangial plant, showing two series of androsporangia; FIG. 7, part of the oospore, showing the reticulate outer spore-wall.
- FIGS. 8, 9. *BULBOCHAETE PYGMAEA* Wittrock var. *ERECTA* Jao, var. nov. FIG. 8, a typical plant, the unbranched filament with an oogonium next to the basal cell and two androsporangia; FIG. 9, a less common plant, showing erect and patent oogonia and a dwarf male sitting on the vegetative cell near the oogonium.
- FIGURE 7 was made with the camera lucida at a magnification of 1550 diameters, the others at 720 diameters, and they are reduced in reproduction to 652 diam. and 303 diam. respectively.

## SOME FORMS IN THE ALISMACEAE

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*ECHINODORUS CORDIFOLIUS* (L.) Griseb., forma **lanceolatus** (Engelm.), comb. nov. *E. rostratus*, var. *lanceolatus* Engelm. in Mackenz. & Bush, Man. Fl. Jackson Co. Mo. 10 (1902) in syn. *E. cordifolius*, var. *lanceolatus* (Engelm.) Mackenz. & Bush, l. c. (1902).

With no clearly defined range and differing only in its small and narrow leaves this is better treated as a form.

*LOPHOTOCARPUS SPONGIOSUS* (Engelm.) J. G. Sm., forma **laminatus**, n. f., foliis laminatis, laminis lanceolatis vel ovatis elobatis vel sagittatis.—Massachusetts to Virginia. TYPE: muddy places, Delaware City, DELAWARE, September 18, 1894, *A. Commons*, in Gray Herb.

*LOPHOTOCARPUS CALYCINUS* (Engelm.) J. G. Sm., forma **maximus** (Engelm.), comb. nov. *Sagittaria calycina*, var. *maxima* Engelm. in Torr. Bot. Mex. Bound. Surv. 212 (1858). *S. calycinus*, var. *grandis* Engelm. in Gray, Man. ed. 5: 493, 494 (1867). *L. calycinus*, var. *maximus* (Engelm.) Robinson in *RHODORA*, x. 31. (1908).

This and the next seem to be a very robust and a very depauperate form rather than true varieties.

*LOPHOTOCARPUS CALYCINUS* (Engelm.) J. G. Sm., forma **depauperatus** (Engelm.), comb. nov. *Sagittaria calycina*, var. *depauperata* Engelm. in J. G. Sm. Lophot. U. S. 4, in syn. (1899). *L. depauperatus* (Engelm.) J. G. Sm. l. c. (1899).

*SAGITTARIA RIGIDA* Pursh, forma **fluitans** (Engelm.), comb. nov. *S. heterophylla*, var. *fluitans* Engelm. in Gray, Man. ed. 2: 439 (1856).

*S. RIGIDA*, forma **elliptica** (Engelm.), comb. nov. *S. heterophylla*, var. *elliptica* Engelm. l. c. (1856).

*SAGITTARIA ENGELMANNIANA* J. G. Sm., forma **dilatata**, n. f., a forma typica recedit laminis ovatis vel deltoideis.—Range of the species, much less common. The following belong here. MASSACHUSETTS: peaty margin of Goodenough Pond, Yarmouth, September 19, 1913, *Fernald & Long* no. 8466 (TYPE in herb. N. E. Bot. Club). RHODE ISLAND: boggy pond-margin, northeast of Woodville, August 30, 1919, *Fernald & Collins*; boggy margin of Tippecan Pond, Exeter, September 22, 1920, *Graves & Woodward*. CONNECTICUT: bog south of Poquonnoc Lake, Groton, September 14, 1905, *Graves*. NEW YORK: swampy pine-barren thicket, Ronkonkoma, Long Isl., September 25, 1922, *W. C. Ferguson*. NEW JERSEY: quagmire near Deer Pond, Atco, September 26, 1921, *Meredith*.

*SAGITTARIA CUNEATA* Sheldon, forma **hemicycla**, n. f., a forma typica recedit foliis ovatis apice rotundatis.—Occasional through the range; TYPE: rocky tidal shore of St. Lawrence River, St. Augustin, Co. Portneuf, Quebec, August 7, 1923, *Svenson & Fassett*, no. 1063 (Gray Herb.).

*S. CUNEATA*, forma **equiloba**, n. f., a forma typica recedit lobis basilaribus plus minusve divergentibus lobum terminalem aequantibus vel subaequantibus acutis.—Occasional throughout the range; TYPE: Isle Royale, Michigan, August 25, 1910, *Cooper*, no. 290 (Gray Herb.).

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ROGERS'S "TREE FLOWERS OF FOREST, PARK, AND STREET."<sup>1</sup>—Professor Rogers has produced a new kind of tree book. As a compendium of information, it is no rival of such works as Hough's, nor does it pretend to be. But it does fill a neglected field—that of adequate, large-scale, photographic illustration of the tiny and inconspicuous, but often morphologically significant, flowers of many woody species. The only precedent for it which comes to mind—and that a partial one—is to be found in the views of enlarged sori in C. E. Waters's "Ferns." Prof. Rogers's photographs, done by a special technique of his devising, attracted much favorable comment when they were exhibited at various botanical institutions some two years ago. They are now made available to the public, in fine half-tone reproduction, in the present exceptionally well printed and handsome volume.

About 85 species are illustrated. Rarely, as in the elm samara shown, the effect is rather foggy; and one could wish that the dissecting-needles on which many flowers are very obviously impaled might have been painted out of the negatives. But for the most part the plates are in every way admirable. Each is accompanied by a few paragraphs of informal descriptive and explanatory text, set in a small block in the middle of the page. The wide margins thus left are utilized for silhouette drawings of some distinctive feature of the species concerned—fruit, leaves, leaf-scars, buds and the like. These are further supplemented by

<sup>1</sup> Rogers, Walter E. *Tree Flowers of Forest, Park, and Street*. Published by the Author, Appleton, Wisconsin. 1935. (13) + 500 pp. Illustrated from photographs by the author and drawings by Olga A. Smith.